

# bloom

ISSUE 31 DECEMBER 2020

page  
4

**20th RRI Conference postponed!**

page  
5

**What you should know about pain management for breast cancer**

page  
9

**Complementary and alternative medicine (CAM): Treatment options for breast cancer**

**Reach to Recovery International (RRI)**

RRI is committed to improving the quality of life of individuals affected by breast cancer and their families.



## Table of contents

- 04. Message from Cathy Hirsch
- 05. Breast cancer pain: Management and treatment
- 06-07. Pain management in breast cancer care
- 08. When cancer spreads to bone, a single dose of radiation therapy may control pain
- 09. Complementary and alternative medicine (CAM): Treatment options for breast cancer
- 10-13. Cannabis and cannabinoids (PDQ®) – patient version
- 14-15. Aromatherapy with essential oils (PDQ®) – patient version
- 16. Personal story: Dealing with pain from spinal metastases
- Special section on COVID-19**
- 17-18. COVID-19: Changing the face of cancer care
- 19. Spotlight on India
- 20-26. Global kitchen

We respectfully acknowledge the Indigenous women of our global community, the traditional custodians of our environment.



Reach to Recovery International, Inc.  
is a global non-profit organisation based  
in Baltimore, Maryland, USA.

Cover photo: 75527587 | © vladi59 | Dreamstime.com

## Our mission

Reach to Recovery International's mission is to:

- Unite organisations throughout the world which support individuals affected by breast cancer, including their families, in order to share ideas and best practices;
- Disseminate valuable information to support individuals affected by breast cancer throughout the world via bi-annual conferences, our website, our e-newsletter, and other forms of worldwide communications; and
- Assist our Member Organisations in achieving their goals of:
  - Improving the quality of life of individuals affected by breast cancer,
  - Providing psychosocial support to individuals affected by breast cancer, either through group meetings or activities or one-on-one peer support provided by carefully trained survivor volunteers,
  - Advocating on behalf of individuals affected by breast cancer,
  - Providing patient navigation to individuals affected by breast cancer.

### Reach to Recovery International, Inc. Board of Directors

Cathy Hirsch *President, Treasurer*  
Ann Steyn *Vice President, Immediate Past President*  
Ranjit Kaur *Past President*  
Karen DeSantis *Secretary*  
David Hirsch *Legal Counsel*

### Special Adviser to RRI Professor Jeff Dunn, AO

### Bloom Editorial Board

Cathy Hirsch  
*President, Reach to Recovery International*

Ann Steyn  
*Immediate Past President, Reach to Recovery International*

Ranjit Kaur  
*Past President, Reach to Recovery International*

Jenni Sheng, MD  
*Medical Oncology Fellow  
Johns Hopkins Sidney Kimmel Comprehensive Cancer Care Center*

Holly Barnard  
*Design*

### Medical Contributors

Cheng Har Yip, MD *Breast Surgery*  
Jowie Mbengo, MD *Radiology*  
Maggie Watson, BSc, PhD,  
Dip Clin Psych AFBPS C Psychol *Clinical Psychology*

## What would you like to read about in the next edition of *bloom*?

Email your theme suggestions to [information@reachtorecoveryinternational.org](mailto:information@reachtorecoveryinternational.org). A theme will be chosen by August 2021. Regardless of whether your suggested theme is chosen this time, it will remain under consideration for future editions.



Bloom is published by Reach to Recovery International, Inc. For more information about RRI, go to [www.reachtorecoveryinternational.org](http://www.reachtorecoveryinternational.org).

## Bloom is introducing a new column!

Do you know a breast cancer survivor who provides outstanding peer support for an organisation in your community? Starting with our next edition in June 2021, we will be featuring a deserving peer-support volunteer in each edition of *Bloom*. These features will also be posted permanently on [www.reachtorecoveryinternational.org](http://www.reachtorecoveryinternational.org). Send your nomination along with a 200–400 word article about the volunteer to [info@reachtorecoveryinternational.org](mailto:info@reachtorecoveryinternational.org). Please also include a high-resolution photo of your nominee. It's a great way to say thanks for a job well done, and to raise awareness about your organisation!



**SUBMIT YOUR ARTICLE**



**CLICK HERE** to view the ABC GlobAlliance video.

## Upcoming events

### World Cancer Day

4 February, 2021

<https://www.worldcancerday.org>

**RRI Conference Update:** the 20th RRI Conference which was to be held from 8 - 11 September 2021 has been postponed and will be rescheduled at a later date.

## Save the dates:

### Advanced Breast Cancer Sixth International Consensus Conference (ABC6)

4 – 6 November, 2021

### ABC Global Alliance meeting

6 – 7 November, 2021

Lisbon, Portugal



“REACH TO RECOVERY INTERNATIONAL IS COMMITTED TO IMPROVING THE QUALITY OF LIFE OF INDIVIDUALS AFFECTED BY BREAST CANCER AND THEIR FAMILIES THROUGH A WIDE RANGE OF SERVICES OFFERED WORLDWIDE.”



# Message from Cathy Hirsch - President of RRI



Cathy Hirsch

Back in June when I shared my message, I was optimistic that, by now, the COVID-19 pandemic would be under control and life would be returning to normal. Unfortunately, that did not prove to be the case. Most of us are still self-isolating as much as possible, and many parts of the world are bracing for upsurges in cases. There is light at the end of the tunnel as vaccines are rolled out worldwide, and all of us with RRI hope you stay safe and well by remaining vigilant and resisting the urge to socialize in groups until it is safe to do so.

## Important Conference announcement -

It is with a heavy heart that I announce a second postponement of the 20th Reach to Recovery International Breast Cancer Support Conference, which most recently was scheduled to be held from 9 – 11 September 2021 in Guadalajara, Mexico, with pre-Conference workshops on 8 September. The Local Organizing Committee in Guadalajara and RRI agree that, in light of the ongoing pandemic, the safety of our speakers and delegates, as well as freedom to travel, cannot be guaranteed. We are optimistic that the world will be a much better place by late 2022, and so we are hoping to reschedule the Conference for some time then. Please look for Conference announcements in Bloom and in your inbox.

## In this edition -

We will not focus heavily on the pandemic in this edition, as many of us are suffering from “COVID fatigue.” Instead, we look at *Pain management in breast cancer care*. We suspect you will find that some of the techniques for managing pain can also be helpful in managing the stress caused by the current world situation.

We explore traditional ways for managing pain caused by surgery, chemotherapy, other medical treatments, or the cancer itself. We also look into a nontraditional method – cannabis and cannabinoids – and at complementary and alternative techniques including special diets, antioxidant supplements, massage therapy, acupuncture, biofeedback, exercise, and techniques that uplift the mind, body, and soul such as meditation, yoga, and art, music, and aroma therapy. From a personal

perspective, we share the story of a patient in Indonesia who is managing to enjoy life while controlling pain from metastatic cancer.

Many of us are finding that our medical appointments have been impacted in recent months, so we have an update on how the Coronavirus is changing the face of cancer care. We also shine a spotlight on Pune, India, where a cancer care center has established the city’s first breast biobank for molecular studies.

We have a special, expanded Global Kitchen section as the holiday season approaches for many of us. We have several delicious recipes from both Portugal and Kenya. Since we are all spending much more time at home – especially in our kitchens – we should have ample time to experiment with new recipes and cooking techniques! Please enjoy.

“  
THERE IS LIGHT AT  
THE END OF THE  
TUNNEL AS VACCINES  
ARE ROLLED OUT  
WORLDWIDE, AND ALL  
OF US WITH RRI HOPE  
YOU STAY SAFE AND  
WELL BY REMAINING  
VIGILANT.”



# Breast Cancer Pain: Management and Treatment

## What should you know about pain management for breast cancer?

It is important that you always tell your doctor or other healthcare provider if you are having pain. Do not wait for them to ask you about pain.

### Managing pain from breast cancer surgery

Breast cancer treatment often includes surgical procedures such as [lumpectomy](#), breast removal, or breast reconstruction. Your doctor may remove one or more lymph nodes from your axillary area, which tends to be painful. The cuts from surgery may cause pain in the skin, breast nerves, or muscle. Degrees of pain or discomfort after surgery is to be expected. During surgery, the surgeon may inject a pain medicine into your surgical area to help decrease the amount of post-operative pain you experience.

Your doctor may also give you a prescription for opioid pain relievers to take for severe pain. He or she will suggest over-the-counter pain medicines such as ibuprofen, acetaminophen, or naproxen to take as a first measure. They will also discuss applying ice to the surgical area for comfort. Make sure that you check with your healthcare provider before taking any kind of medicine, even non-prescription items.

Post-operatively, wearing a soft bra that fastens in the front is comforting. After lymph node surgery, keeping the arm elevated on a pillow when sitting and placing a small lap pillow between your upper arm and lateral chest wall will help with arm pain and healing.

Activity after surgery, such as walking and starting slowly the arm range of motion exercises, once cleared by your surgeon, helps to improve healing and pain. The limitations on activity and exercise will be discussed with you by your surgical team. Pain that is new or worsening in the days after surgery should be brought to the surgeon's attention to make sure there is no infection or problem with the surgical area.

### Managing pain from radiation therapy for breast cancer

If you have radiation therapy, it is likely to affect your skin. The results are similar to a sunburn in some cases, where skin gets red, tender, blisters and then peels, like a bad sunburn. Your doctor will recommend a topical cream or lotion to rub on the skin area daily. A few recommendations can include ucerin cream, aquaphore, and aloe vera. The lotions make the skin feel better. You may also take an over-the-counter pain aid as needed. You may experience some pain inside your breast while you are having radiation or even up to the year after radiation as the tissues heal. The recommendation for best results is to continue to rub the lotion onto your skin, even after treatment is complete, to keep the skin soft as radiation will dry it out. Also you should continue range of motion exercises of your arm and shoulder area to prevent scar tissue from forming.

### Are there alternative ways to treat breast cancer pain?

An accurate diagnosis of the cause of pain can be challenging, and effective pain management can be complex. Pain management specialists employ an interdisciplinary approach to ease suffering and improve quality of life of those living with pain.

In addition to medications, a specialist might recommend:

- Physical therapy
- Exercise
- Ice or heat application
- Psychological tools, like biofeedback, cognitive behavioral therapy, or support groups
- Complementary methods like massage, reiki, acupuncture, hypnosis, meditation and yoga

“IT IS IMPORTANT THAT YOU ALWAYS TELL YOUR DOCTOR OR OTHER HEALTHCARE PROVIDER IF YOU ARE HAVING PAIN. DO NOT WAIT FOR THEM TO ASK YOU ABOUT PAIN.”

# Pain management in breast cancer care

**Rama Sivaram**, Consultant - KEM Hospital Res. Centre,  
Member - Advocacy and Rehab Nag Foundation,  
Pune, India



Rama Sivaram

**“... [P]ain is constructed entirely in the brain. This doesn't mean your pain is any less real – it's just that your brain literally creates what your body feels, and in cases of chronic pain, your brain helps perpetuate it.”**

(The Connection Between Pain and Your Brain, Linda Rath, Arthritis Foundation,  
<https://www.arthritis.org/health-wellness/healthy-living/managing-pain/understanding-pain/pain-brain-connection>)

Pain is a complex construct of the brain. It is a noxious stimulus, unpleasant and stressful, signalling something is wrong and the body needs to be protected and repaired. As a protective force, it triggers the body's adaptive response (a response in which the brain changes or adapts itself to maintain a relative, stable, regulated internal environment (homeostasis) and performance for survival.) There are several steps and processes that occur between the physiological changes happening in the body and in the brain. They involve nerve impulses, pain receptors (nerve endings in body tissues, that respond specifically to stimuli that damage or are likely to damage, also called nociceptors), and chemical pain mediators, all of which make pain a conscious experience deep in our limbic system where memory and emotion are stored, the cortex and nerve bundles forming a network in the brain stem where consciousness, sensory and motor function, and endocrine and neurotransmitter regulation happen. So, there are many interconnected physiological processes from our sympathetic nervous, neuro-endocrine, immune system, and limbic systems through which our body responds to pain.

My interest in pain management started with my own lymphedema, the outcome of sacrificed lymph nodes and a few nerves post breast cancer surgery, with insult added by radiation. Lymphedema was not talked of 16 years back. Sentinel node biopsy had not yet become a recommended option and physiotherapy was offered minimally for simple range of motion. At the most, I was prescribed, for a short period, non-steroidal anti-inflammatory medication (NSAIDs) including acetaminophen-paracetamol combinations and mefenamic acid with paracetamol and proteolytic enzymes (primarily used to aid digestion and the

breaking down of food, but also found useful in easing joint and muscle pains). Over the counter emollients, ranging from castor oil and aroma therapy oils to topical creams with diclofenac, methyl salicylate, menthol, ibuprofen, and lignocaine, did not offer any benefit. I kept myself busy with things I enjoyed such as listening to great music, exercising, reading a lot of self-help books and doing a lot of self-talk. All of this, combined with performing lymphatic drainage and practicing Reiki, came to my rescue. Today when I look at my pain, which flares up off and on, I realize that I have managed it mostly with my mind: my temperament, acceptance, relearning my body, and knowing the triggers and rewards from my own participation in reducing pain. Of course, when it affects my sleep and mood, along with having a good cry I also swallow a couple of NSAIDs. Similarly, my memories of managing childhood pain came from my mom's tender touch, dressing a wound or giving me a brew to soothe my tummy ache. The therapeutic touch, a granny's lullaby, and an uncontaminated child's mind were usually more than enough. I thought, "I am a hero who could heal without bitter medicines and injections." I wish the same could be said of cancer and cancer-related pain. But a cancer runs its own course and the adult brain has its own plans and we must be prepared to address pain in every dimension holistically, since a woman's life, experiences, and cancer cannot be underestimated.

**Care to understand the uniqueness of every woman's pain.** In working with breast cancer patients for more than 15 years, I've learned that breast cancer pain comes in many different contexts. Sometimes it is difficult to understand if a woman is in a physical, physiological, sensory, psychosomatic, or psychogenic pain.

Whatever it is the brain is processing, pain needs to be addressed. How and in how many ways it is addressed is very important in the care of women for improved outcomes and quality of life. I observe there is early breast cancer pain related to surgical or radiation outcomes and an additional disease-related pain in advanced or metastatic breast cancer. There are short duration pains (short-term side effects) which, combined with physical or occupational therapy and pain medication, are resolved. There are chronic pain syndromes lasting forever (long-term side effects). There is the intensity of pain in relationship to somatic, visceral, neuropathic, psychogenic, or phantom pain. Pain can be affected by the stage of disease and a woman's own emotional and cognitive state, along with her relationship to the self and others. The environment of the woman's health care facility may contribute, in that there may be insufficient time for thorough appointments, or doctor/patient communications to specify and identify the type and severity of pain may be inadequate. The smiley face pain scales do not suffice for sensory pain and emotional fatigue, leaving the doctor to guess and prescribe pain medications. There is a need to actively understand every woman and her pain as unique so that she can receive optimal and satisfying therapy. The goal is to make her pain free or at least to effectively manage her pain.

**Care to counsel on potential outcomes of surgery, radiation and metastatic disease, and anticipatory monitoring for these outcomes.** A woman needs sensitive guidelines to be prepared for, and seek early care for, pain that is a response to any of the following trauma requiring both medication and physio or occupational therapy:

- Perception of cancer and loss of partial or whole breast (which triggers a mix of

emotional and physical pain)

- Pain with numbness and heaviness related to seroma in the underside of the axilla (arm pit)
- Arm and shoulder pain and dysfunction affecting range of motion, especially when elevated
- Axillary web syndrome, or lymphatic cording, where soft tissues spread like a web in the axilla in a rope-like structure that extends down the arm after partial or complete axillary clearance (removal of lymph nodes)
- Phantom breast pain, or sensations of pain in the non-existent breast
- Lymphedema and related infections and flareups like cellulitis, erysipelas and lymphangitis (bacterial infections due to fluid build-up, cracks in skin and/ or trauma)
- Post-mastectomy pain syndrome in the shoulder and winged scapula or protruding shoulder blade. Muscle pain (somatic) and along the nerves pain (neuropathic) are very common
- Nerve-related or Neuropathic pains, which may involve increased sensitivity and pain to sensory stimuli, increased pain on touch, medically called hyper-aesthesia (above-normal sensation), caused by removing brachial nerve during lymph node clearance and radiation in the axilla
- Pain in bones, visceral pain in abdomen, lung and chest pain and intense headache depending on metastatic sites in advanced or metastatic disease

**Care to include pain and palliative care specialists and a pain clinic at the outset of treatment.** Pain specialists classify pain in two main categories of nociceptive and neuropathic pain. Nociceptive is divided into musculoskeletal (somatic) and organ (visceral) pain. Neuropathic is divided into:

- Dyesthesia numbness and tingling
- Hyperalgesia, which is an exaggerated response with burning and tingling sensations, and
- Allodynia, where even a stimulus like a simple touch causes pain when it should not

However, pain specialists are not usually called in and attending oncologists address an overarching amount of reported pain. I have learned much from metastatic cancer patients, who describe their pain sensations as well as the trauma of a growing tumour, nerve damage, and fungating wounds. They report that coughing, moving, and re-positioning all cause intense pain. It is painful for those suffering it and frustrating to those of us who are trying to help. There

may come a point when a patient is finally referred to a pain specialist or rather palliative care specialist if and when available, but not every little town, city or hospital has these speciality services. The importance of incorporating a pain clinic as an integral part of comprehensive oncology care is known but is not always put into practice in a timely manner if at all.

**Care to advocate for pain management.**

Let every woman know that, whether in early- or late-stage disease, one need not suffer pain. There is minimal and optimal pain management and there is a well laid out global consensus and a WHO analgesic ladder keeping in mind the intensity and steps to manage pain. It is every woman's right to get these medications, especially she has chronic, increasing and disease-related pain. The list includes:

- Non-opioids (NSAIDS) with or without adjuvants (medication not intended for pain but that has been found effective in managing pain, specifically neuropathic pain) for increasing or persisting pain
- Mild to moderate opioids, with or without NSAIDS and adjuvants for still increasing pain, and
- Dose or bolus-adjusted opioids with or without NSAIDs and adjuvants

There are additional nerve blocks and transdermal pain patches for round-the-clock management of pain. Pain specialists evaluate each patient, each pain, intensity and patient status before prescribing or scheduling administration of the necessary medication. India needs a double prescription for opioids and, under the Narcotic Drugs and Psychotropic Substances Act, every pharmacy or hospital must be licensed to prescribe or store opioids and psychotropic drugs. CBD medical cannabis is now becoming available in India. I recall a few years back, a doctor trying to get it from abroad for her mother, who was close to 80 and in intense pain from a metastatic disease after 30 years of remission.

**Care to facilitate complementary and alternate therapies in addition to counselling and physiotherapy.** Holistic and whole-person approaches treat the pain and person together by combining various physical and mind methods to address pain and promote improved quality of life through the patient's own volition. In India, alongside evidence-based allopathy are complementary therapies and alternate medicine like Ayurveda, Unani, Siddha and Homeopathy

(AYUSH) used to address side effects like pain, nausea, and more. Regulatory issues ensuring safety and efficacy and lack of rigorous clinical trials makes them questionable for primary treatment of cancers due to plant, ash and non-plant heavy metal toxicities. However, emollients, herbal oils and creams are popular. The view to take is as long as they don't harm the patients and there is pain relief it is ok. The goal is pain management with minimal or no side effects.

**Care to include suggestive processes like biopsychosocial pain management, biofeedback, and hypnotherapy.**

These alternatives use the power of suggestion to modify our beliefs, situations, emotions and expectations at the cerebral level and find relief from pain with or without adjuvant pain medications. Suggestion can be seen side by side with placebo and nocebo in clinical trials, which recognize psychobiological mechanisms and endorse the neurobiological, social and behavioural sciences and humanities evoking our response to pain. This is also a non-invasive and empathetic process that brings homeostasis or inner balance, where positive feedbacks, suggestions and expectations are known to improve the immune system and release rewarding, feel-good and natural pain-blocking brain chemicals like dopamine and opioids. Nurturing women to believe they can manage and control their pain helps put them in control of themselves. For women living with cancer, the power of suggestion, empathetic processes, and the mind are just as important as medication.

Managing pain in breast cancer care brings to mind a sonnet that finds an analogy in caring for women.

**How Do I Love Thee?**

Let me count the ways.

I love thee to the depth and breadth and height

My soul can reach, when feeling out of sight

For the ends of being and ideal grace.

I love thee to the level of every day's

Most quiet need, by sun and candle-light.

*Elizabeth Barret Browning, Sonnets from the Portuguese (1850)*

Should we not address pain in breast cancer care - caring in every way, every day? As Browning aptly says, "to the depth, breadth and height . . . to the level of every day's most quiet need, by sun and candlelight." For every woman is here and now.

**REFERENCES:**

1. Swift A (2018) Understanding pain and human body's response to it. Nursing Times [online]; 114: 3, 22-26
2. The Connection Between Pain and Your Brain Linda Rath. Arthritis foundation <https://www.arthritis.org>
3. <https://www.integrativepainscienceinstitute.com/brain-create-pain-stop/>
4. Implications of Placebo and Nocebo Effects for Clinical Practice: Expert Consensus <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6191882>
5. <https://www.breastcancer.org/treatment/surgery/reconstruction/corrective/necrosis-flap>
6. Rehab for Post Mastectomy syndrome Eric Wisotzky, MD MedStar National Rehabilitation Network

Wikipedia for definitions  
 Understanding Pain – a Biopsychosocial Approach Mary Cardosa <https://www.slideshare.net/AnestesiUnhas/biopsychosocial-pain-2019>



# When Cancer Spreads to Bone, A Single Dose of Radiation Therapy May Control Pain

NCI Staff

**For patients with cancer that has spread to their bones, a single dose of radiation therapy may treat bone pain as effectively as a series of lower doses of radiation delivered over multiple days, according to the results of a clinical trial.**

When cancer spreads, [tumor cells frequently travel to bone](#), sometimes causing debilitating pain. Radiation therapy has long been used to shrink metastatic bone tumors to help relieve this pain, but no consensus has been reached about the optimal dose of such palliative radiation and whether it should be delivered in a single dose or in multiple treatments.

To explore this question, researchers enrolled 160 patients at the University of Texas MD Anderson Cancer Center in a phase 2 randomized clinical trial that compared a single higher dose of radiation therapy to multiple lower doses—the current standard—delivered over 2 weeks. The patients had painful bone metastases that mostly did not involve the spine.

In the trial, [a single dose of radiation therapy was not inferior](#) to the standard multiple doses in terms of controlling pain and recurrences at the treated sites, Quynh-Nhu Nguyen, M.D., and her colleagues reported in *JAMA Oncology* on April 25.

Due to advances in treatment, more patients with metastatic cancer and bone metastases are living longer today than in the past, so the need to address bone pain has increased, the study authors wrote. Treating bone pain is critical to helping maintain patients' quality of life, they added.

"This is one of the most exciting studies about the value of radiotherapy treatments for bone pain to come out in the past several years," said Stephen Lutz, M.D., a radiation oncologist at Eastern Woods Radiation Oncology in Findlay, Ohio, who was not involved in the study.

"Radiation therapy has always provided safe and effective relief for patients experiencing bone pain from metastatic cancer," Dr. Lutz continued. "The results of this study suggest that the effectiveness of radiation therapy can be greatly improved by using new technologies."

These technologies—which include 3-dimensional radiation therapy and intensity-modulated radiation therapy (IMRT) and were used in this trial—allow doctors to safely deliver higher doses of radiation than earlier techniques while sparing healthy tissues as much as possible, noted Dr. Nguyen.

## Addressing Concerns about Previous Trials

In recent decades, a number of randomized clinical trials have tested different ways to use radiation therapy for bone metastases. These studies employed the tools available at the time, including 2-dimensional radiation therapy, and a relatively low dose of radiation, such as 8 gray (Gy).

Results from some of the trials have suggested that delivering palliative radiation in a single dose provides equivalent pain relief as delivering it in multiple smaller doses, the study authors noted.

But single-dose regimens have also been associated with higher rates of having to re-treat patients whose pain has returned, the authors added.

"Our study addresses the concerns with the previous trials that may contribute to reasons clinicians are not using the single-dose treatment for patients," said Dr. Nguyen. The trial's goal, she continued, was to show that the single dose was equivalent, or not inferior, to the multiple-dose regimen in terms of pain relief.

Patients in the single-dose group received a higher dose than previous trials, either 12 or 16 Gy, depending on the size of their metastatic bone tumors. Patients in the other group received a total of 30 Gy, delivered over the course of 10 treatment sessions.

To compare the outcomes of the two treatment regimens, the researchers analyzed pain questionnaires filled out by patients and measured how much pain medication each patient used.

The researchers found that the higher single dose was both safe and effective. They also

did not observe differences between the groups in radiation treatment-related side effects, such as fatigue, or scores on quality-of-life assessments.

The study showed more patients in the single-dose group reported all or some of their bone pain had been alleviated at 2 weeks, 3 months, and 9 months, compared with patients in the multiple-dose group.

Moreover, at both 1 and 2 years after the initial treatment, the rate of tumor recurrence at treated bone sites was lower in the group that received a single dose than in the group that received multiple doses.

## Toward Individualized Care for Patients with Bone Pain

"The current results are based on a small number of patients and will need to be confirmed in a larger group treated at multiple different cancer centers," said Dr. Lutz.

A larger clinical trial is planned to evaluate the higher, single-dose approach in more patients. The findings could help clinicians treat patients with the most appropriate radiation therapy regimens for their bone metastases, Dr. Nguyen said.

She stressed that patients with metastatic cancer vary in their overall health, how long they are expected to survive, and the extent of bone metastases.

"Some patients will have a single bone metastasis, whereas others have three metastases or many," she said. "We should individualize our care for these patients."

For instance, for a person with a life expectancy of less than a month, "it's reasonable to give them a single low dose of radiation for pain," Dr. Nguyen continued.

But for those who are functioning well and whose life expectancy is relatively long, "it makes sense to give them a single higher dose of radiation to alleviate pain over the long term," she added.



A new study may change how radiation is used in some people to treat pain caused by bone metastases. Credit: iStock



# Complementary and Alternative Medicine (CAM): Treatment Options for Breast Cancer

## Healthline

### How CAM treatments can help with breast cancer

If you have breast cancer, you may want to explore different treatment methods to supplement traditional medicine. Options include acupuncture, detoxification diets, traditional Chinese medicine, and antioxidants, among other alternatives. These are known as complementary and alternative medicine (CAM).

Many people use CAM treatments to help ease side effects, relieve pain, and improve their quality of life. Although some CAM treatments are effective, not all are safe. It's important to keep in mind these are complementary remedies and shouldn't be used in place of your doctor-approved treatment plan.

### CAM treatment 1: Special diet

A healthy diet is an important part of cancer treatment. You should eat well whether you're using traditional methods or CAM.

However, some people with breast cancer may start on a special diet in place of taking anticancer drugs.

You should avoid foods that are:

- high-fat
- salt-cured
- smoked
- pickled

You should also double up on fruits, vegetables, and plant-based foods.

Before switching up your diet, talk with your doctor. They can work with you to come up with a nutrition plan that can help you build strength and maintain your body's natural defenses.

### CAM treatment 2: Antioxidant supplements

Antioxidants lower your risk of cancer by helping protect your body from damage caused by free radicals. Free radicals are molecules that can harm cells.

Certain grains, fruits, and vegetables are rich with dietary antioxidants, including:

- beta carotene
- lycopene
- vitamin A
- vitamin C
- vitamin E

These antioxidants may be found in the following foods:

- goji berries
- wild blueberries
- dark chocolate
- pecans
- kidney beans

They're also available through dietary supplements. However, research is mixed on whether antioxidant supplements are safe to use during cancer treatment.

Dietary supplements may:

- interact with prescription drugs
- contain contaminated synthetic prescription drugs
- contain unknown contaminants

This can result in a number of unexpected complications. People with breast cancer should use them with caution.

If you want to try antioxidant supplements, be sure to talk with your doctor first. They can explain your individual risks and benefits.

### CAM treatment 3: Mind, body, and soul therapies

Mind-body practices are meant to improve your mind's positive impact on the rest of your body.

Examples of these practices include:

- art therapy
- music therapy
- aromatherapy
- meditation
- yoga
- labyrinth walking
- reiki
- tai chi

Each therapy targets your mind, body, and soul using meditative techniques and creative activities that help enhance your quality of life. Some remedies, such as art therapy and music therapy, are most effective when working with a licensed practitioner.

Research has proven that these types of mind, body, and soul therapies are effective at relieving stress, anxiety, and pain, but they shouldn't be used in place of a doctor-recommended treatment plan.

### CAM treatment 4: Massage therapy

Massage therapy is known to boost immunity and ease anxiety, pain, and fatigue. One [2003 study](#) found that in women who had breast cancer, massage therapy helped reduce not only anxiety and pain, but also the need for pain medication.

Another [study](#) released around that time found that massage therapy and progressive muscle relaxation helped increase protective white blood cells in women with stage 1 and stage 2 breast cancer.

If you'd like to incorporate massage therapy into your routine, make sure you work with a licensed practitioner who's trained to avoid or work around sensitive areas affected by traditional treatment.

### CAM treatment 5: Acupuncture

Acupuncture is a central part of traditional Chinese medicine that may help relieve symptoms of breast cancer and side effects of treatment. Acupuncture requires a practitioner to place sterile, hair-thin needles into acupuncture points — specific points on your skin — then gently move them to stimulate your nervous system.

ResearchTrusted Source has shown that [acupuncture](#) can help:

- relieve fatigue
- control hot flashes

- reduce vomiting
- reduce pain
- help decrease nausea

However, it does carry some risks, such as:

- infection
- bleeding
- lymphedema, which is swelling caused by excess fluid, in your arm

Sometimes practitioners incorporate herbal supplements into acupuncture treatment. People undergoing chemotherapy shouldn't use herbal supplements because they're known to reduce the effectiveness of chemotherapy. Be sure to talk with your practitioner about your needs and what techniques they may use for you.

### CAM treatment 6: Biofeedback

Biofeedback training is used to treat the side effects of chemotherapy. During biofeedback, you're hooked up to electrical sensors that monitor subtle changes in your body.

This method may help you gain conscious power over your body so that you can control actions that are normally autonomic, or involuntary. These functions include:

- muscle tension
- heart rate
- blood pressure

Your doctor will determine which type of biofeedback technique is best to treat your symptoms.

According to the [Mayo Clinic](#), Resperate is the only biofeedback device approved by the U.S. Food and Drug Administration. So be

careful of machines marketed for at-home use. Some may be fraudulent and can cause damage.

### What a traditional treatment plan for breast cancer consists of

There are five standard types of care used to treat breast cancer:

- surgery
- radiation therapy
- chemotherapy
- hormone therapy
- targeted therapy

Surgery and radiation therapy are considered local therapies because they treat cancer cells without affecting the rest of your body. Local therapies are most effective in the earlier stages of breast cancer.

Chemotherapy, hormone therapy, and targeted therapy are known as systemic therapies. Systemic therapies use drugs to treat breast cancer. Those drugs enter your bloodstream by either oral use or injection and reach tumors that have spread throughout your body. Systemic therapies are more effective in advanced stages of breast cancer.

Some breast cancer treatments, such as chemotherapy, may cause side effects that last months or even years after therapy has ended. Some treatment plans may require multiple remedies at once, or one after the other.

The stage and type of breast cancer will determine the type of treatment plan you're on. Advanced stages of breast cancer

typically require a combination of local and systemic therapies. Early on, localized or operable breast cancer may only require surgery. However, your doctor may want you on postoperative treatment to reduce the chances of tumors reappearing.

### Talk with your doctor

Make sure you talk with your doctor before you begin any of these alternative treatments. Your doctor can tell you if complementary or alternative therapies will be effective for the stage of your breast cancer, and steer you away from fraudulent products.

They can also tell you what research is available on different CAM treatments, what is and isn't known about them, and whether they're safe. Your doctor can also write you a referral or a recommendation for an appropriate CAM treatment. Once you have all the information, you can make a truly informed decision.

### The bottom line

CAM treatments shouldn't be used in place of your doctor-recommended treatment plan. CAM treatments aren't considered an effective alternative to first-line treatment for breast cancer.

Although many major insurers cover CAM treatment, some may not. Because of this, there may be a large out-of-pocket cost. You should make sure to investigate the type of CAM treatments you're interested in and whether they're covered before committing your time, money, and energy.

# Cannabis and Cannabinoids

## (PDQ®)–Patient Version

National Cancer Institute

### Overview

- *Cannabis*, also known as marijuana, is a plant grown in many parts of the world. It makes a resin (thick substance) that contains compounds called cannabinoids (see Question 1).
- By federal law, possessing *Cannabis* is illegal in the United States outside of approved research settings. However, a growing number of states, territories, and the District of Columbia have passed laws to legalize medical marijuana (see Question 1).
- Cannabinoids are chemicals in *Cannabis* that cause drug-like effects throughout the body, including the central nervous system and the immune system (see Question 2).
- The main psychoactive cannabinoid in *Cannabis* is delta-9-THC. Another active cannabinoid is cannabidiol (CBD), which may relieve pain, lower inflammation, and decrease anxiety without causing the "high" of delta-9-THC (see Question 2).
- Cannabinoids can be taken by mouth, inhaled, or sprayed under the tongue (see Question 4).
- *Cannabis* and cannabinoids have been studied for relief of pain, nausea and vomiting, anxiety, and loss of appetite caused by cancer or the side effects of cancer therapies (see Question 6).
- Two cannabinoid drugs (dronabinol and nabilone) are approved by the U.S. Food and Drug Administration (FDA) for the prevention or treatment of nausea and vomiting caused by chemotherapy (see Question 6 and Question 8).
- The FDA has not approved *Cannabis* or cannabinoids for use as a cancer treatment (see Question 8).

### Questions and Answers About Cannabis

#### 1. What is Cannabis?

*Cannabis*, also known as marijuana, is a plant first grown in Central Asia that is now grown in many parts of the world. The *Cannabis* plant makes a resin (thick substance) that contains compounds called cannabinoids. Some cannabinoids are psychoactive (affecting your mind or mood). In the United States, *Cannabis* is a controlled substance and has been classified as a Schedule I agent (a drug with a high potential for abuse and no accepted medical use).

Hemp is a mixture of the *Cannabis* plant with very low levels of psychoactive compounds. *Hemp oil* or cannabidiol (CBD) are products made from extracts of industrial hemp, while *hemp seed oil* is an edible fatty oil that contains only scant or no cannabinoids. Hemp is not a controlled substance, but CBD is.

See the [General Information](#) section of the health professional version of the [Cannabis and Cannabinoids](#) summary for more information on medicinal *Cannabis* products.

Clinical trials that study *Cannabis* for cancer treatment are limited. To do clinical trials research with plant-derived *Cannabis* in the United States, researchers must file an Investigational New Drug (IND) application with the FDA, have a Schedule I license from the U.S. Drug Enforcement Administration, and have approval from the National Institute on Drug Abuse.

By federal law, possessing *Cannabis* (marijuana) is illegal in the United States unless it is used in approved research settings. However, a growing number of states, territories, and the District of Columbia have passed laws to legalize medical marijuana. (See Question 3).

#### 2. What are cannabinoids?

Cannabinoids, also known as phytocannabinoids, are chemicals in *Cannabis* that cause drug-like effects in the body, including the central nervous system and the immune system. Over 100 cannabinoids have been found in *Cannabis*. The main psychoactive cannabinoid in *Cannabis* is delta-9-THC. Another active

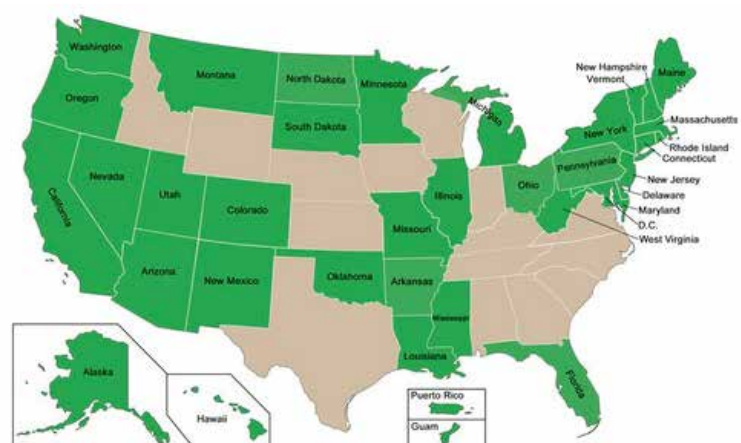
cannabinoid is cannabidiol (CBD).

Cannabinoids may help treat the side effects of cancer and cancer treatment.

#### 3. If Cannabis is illegal, how do some cancer patients in the United States use it?

Although federal law prohibits the use of *Cannabis*, the map below shows the states and territories that have legalized *Cannabis* for medical purposes. Some other states have legalized only one ingredient in *Cannabis*, such as cannabidiol (CBD), and these states are not included in the map. Medical marijuana laws vary from state to state.

States and Territories in which Cannabis is Legal for Medical Purposes





#### 4. How is *Cannabis* given or taken?

*Cannabis* may be taken by mouth (in baked products or as an herbal tea) or may be inhaled. When taken by mouth, the main psychoactive ingredient in *Cannabis* (delta-9-THC) is processed by the liver and changed into a different psychoactive chemical (11-OH-THC).

When *Cannabis* is smoked and inhaled, cannabinoids quickly enter the bloodstream. The psychoactive chemical (11-OH-THC) is made in smaller amounts than when taken by mouth.

A growing number of clinical trials are studying a medicine made from an extract of *Cannabis* that contains specific amounts of cannabinoids. This medicine is sprayed under the tongue.

#### 5. Have any laboratory or animal studies been done using *Cannabis* or cannabinoids?

In laboratory studies, tumor cells are used to test a substance to find out if it is likely to have any anticancer effects. In animal studies, tests are done to see if a drug, procedure, or treatment is safe and effective in animals. Laboratory and animal studies are done before a substance is tested in people.

Laboratory and animal studies have tested the effects of cannabinoids in laboratory experiments. See the [Laboratory/Animal/Preclinical Studies](#) section of the health professional version of [Cannabis and Cannabinoids](#) for information on laboratory and animal studies done using cannabinoids.

#### 6. Have any studies of *Cannabis* or cannabinoids been done in people?

No ongoing studies of *Cannabis* as a treatment for cancer in people have been found in the [CAM on PubMed](#) database maintained by the National Institutes of Health.

Small studies have been done, but the results have not been reported or suggest a need for larger studies.

- Cannabidiol (CBD) taken by mouth to treat solid tumors that have recurred (come back).
- An oral spray combining 2 cannabinoids (delta-9-THC and CBD) given with temozolomide to treat recurrent glioblastoma multiforme.
- CBD taken by mouth to treat acute graft-versus-host disease in patients who have undergone allogeneic hematopoietic stem cell transplantation.

*Cannabis* and cannabinoids have been studied as ways to manage side effects of cancer and cancer therapies.

#### NAUSEA AND VOMITING

*Cannabis* and cannabinoids have been studied in the treatment of nausea and vomiting caused by cancer or cancer treatment:

- **Delta-9-THC taken by mouth:** Two cannabinoid drugs, dronabinol and nabilone, approved by the U.S. Food and Drug Administration (FDA), are given to treat nausea and vomiting caused by chemotherapy in patients who have not responded to standard antiemetic therapy. Clinical trials have shown that both dronabinol and nabilone work as well as or better than other drugs to relieve nausea and vomiting.
- **Oral spray with delta-9-THC and CBD:** Nabiximols, a *Cannabis* extract given as a mouth spray, was shown in a small randomized, placebo-controlled, double-blinded clinical trial in Spain to treat nausea and vomiting caused by chemotherapy.
- **Inhaled *Cannabis*:** Ten small trials have studied inhaled *Cannabis* for the treatment of nausea and vomiting caused by chemotherapy.

Newer drugs given for nausea caused by chemotherapy have not been directly compared with *Cannabis* or cannabinoids in cancer patients.

There is growing interest in treating children for symptoms such as nausea with *Cannabis* and cannabinoids, but studies are limited. The [American Academy of Pediatrics](#) has not endorsed *Cannabis* and cannabinoid use because of concerns about its effect on brain development.

#### STIMULATING APPETITE

The ability of cannabinoids to increase appetite has been studied:

- **Delta-9-THC taken by mouth:** A clinical trial compared delta-9-THC (dronabinol) and a standard drug (megestrol, an appetite stimulant) in patients with advanced cancer and loss of appetite. Results showed that delta-9-THC did not help increase appetite or weight gain in advanced cancer patients compared with megestrol.
- **Inhaled *Cannabis*:** There are no published studies of the effect of inhaled *Cannabis* on cancer patients with loss of appetite.

#### PAIN RELIEF

*Cannabis* and cannabinoids have been studied in the treatment of pain:

- **Vaporized *Cannabis* with opioids:** In a study of 21 patients with chronic pain, vaporized *Cannabis* given with morphine relieved pain better than morphine alone, while vaporized *Cannabis* given with oxycodone did not give greater pain relief. Further studies are needed.

• **Inhaled *Cannabis*:** Randomized controlled trials of inhaled *Cannabis* in patients with peripheral neuropathy or other nerve pain found pain was reduced in patients who received inhaled *Cannabis* compared with those who received placebo.

• ***Cannabis* plant extract:** A study of *Cannabis* extract that was sprayed under the tongue found it helped patients with advanced cancer whose pain was not relieved by strong opioids alone. In another study, patients who were given lower doses of cannabinoid spray showed better pain control and less sleep loss than patients who received a placebo. Control of cancer-related pain in some patients was better without the need for higher doses of *Cannabis* extract spray or higher doses of their other pain medicines. Adverse events were related to high doses of cannabinoid spray.

• **Delta-9-THC taken by mouth:** Two small clinical trials of oral delta-9-THC showed that it relieved cancer pain. In the first study, patients had good pain relief, less nausea and vomiting, and better appetite. A second study showed that delta-9-THC could relieve pain as well as codeine. An observational study of nabilone also showed that it relieved cancer pain along with nausea, anxiety, and distress when compared with no treatment. Neither dronabinol nor nabilone is approved by the FDA for pain relief.

#### ANXIETY

*Cannabis* and cannabinoids have been studied in the treatment of anxiety.

• **Inhaled *Cannabis*:** A small case series found that patients who inhaled *Cannabis* had improved mood, improved sense of well-being, and less anxiety. In another study, 74 patients newly diagnosed with head and neck cancer who were *Cannabis* users were matched to 74 nonusers. The *Cannabis* users had markedly lower anxiety or depression and less pain or discomfort than the nonusers. The *Cannabis* users were also less tired, had more appetite, and reported greater feelings of well-being.

#### 7. Have any side effects or risks been reported from *Cannabis* and cannabinoids?

Side effects of cannabinoids can include:

- Fast heartbeat
- Low blood pressure
- Muscle relaxation
- Bloodshot eyes
- Slowed digestion
- Dizziness
- Drowsiness
- Depression

- Hallucinations
- Paranoia

Both *Cannabis* and cannabinoids may be addictive. Symptoms of withdrawal from cannabinoids include:

- Being easily annoyed or angered.
- Trouble sleeping.
- Unable to stay still.
- Hot flashes.
- Nausea and cramping (rare).

These symptoms are mild compared with symptoms of withdrawal from opiates and usually go away after a few days.

#### Studies on risks from *Cannabis* use

Studies on the risk of various cancers linked to *Cannabis* smoking have shown the following:

- **Lung cancer:** Because *Cannabis* smoke contains many of the same substances as tobacco smoke, there are concerns about how inhaled *Cannabis* affects the lungs. A cohort study of men in Africa found that there was an increased risk of lung cancer in tobacco smokers who also inhaled *Cannabis*. A population

study of lung cancer patients found that low *Cannabis* use was not linked to an increased risk of lung cancer or other aerodigestive tract cancers.

- **Testicular cancer:** A 1970 study interviewed over 49,000 Swedish men aged 19 to 21 years about their personal history of using *Cannabis* at the time they enlisted in the military and then followed them for up to 42 years. The study did not find a link between those who had "ever" used *Cannabis* and testicular cancer, but did find that "heavy" use of *Cannabis* (more than 50 times in a lifetime) was linked to more than twice the risk of testicular cancer. The study was limited by the way data was gathered and did not note whether the testicular cancers were seminoma or nonseminoma types or whether *Cannabis* use also occurred after enlistment.

- **Bladder cancer:** A review of bladder cancer rates in *Cannabis* users and non-users was done in over 84,000 men who took part in the California Men's Health Study. After more than 16 years of follow-up and adjusting for age, race, ethnic group, and body mass index, rates

of bladder cancer were found to be 45% lower in *Cannabis* users than in men who did not report *Cannabis* use.

Larger studies that follow patients over time are needed to find if there is a link between *Cannabis* use and a higher risk of testicular germ cell tumors.

#### 8. Are *Cannabis* or cannabinoids approved by the U.S. Food and Drug Administration for use as a cancer treatment or treatment for cancer-related symptoms or side effects of cancer therapy?

The U.S. Food and Drug Administration (FDA) has not approved *Cannabis* or cannabinoids for use as a cancer treatment.

*Cannabis* is not approved by the FDA for the treatment of any cancer-related symptom or side effect of cancer therapy.

Two cannabinoids (dronabinol and nabilone) are approved by the FDA for the treatment of nausea and vomiting caused by chemotherapy in patients who have not responded to antiemetic therapy.



# Aromatherapy With Essential Oils

## (PDQ®)–Patient Version

National Cancer Institute

### Overview

- Aromatherapy is the use of essential oils from plants (flowers, herbs, or trees) as therapy to improve physical, mental, and spiritual well-being (see Question 1).

Aromatherapy may be used with other complementary treatments, such as massage or acupuncture, as well as with standard medical treatments to manage symptoms caused by cancer or cancer treatment (see Question 1).

Essential oils are most often used by inhaling them or by applying a diluted form of them to the skin (see Question 2).

Aromatherapy research with cancer patients has studied the effect of essential oils on anxiety, nausea, vomiting, and other health-related conditions (see Question 4).

Safety testing on essential oils has found very few side effects. Lavender and tea tree essential oils have been found to have some hormone-like effects (see Question 5).

Aromatherapy products do not need approval by the U.S. Food and Drug Administration (FDA) (see Question 6).

### Questions and Answers About Aromatherapy

#### 1. What is aromatherapy?

Aromatherapy is the use of essential oils from plants to improve the mind, body, and spirit. It is used by patients with cancer to improve quality of life and reduce stress, anxiety, pain, nausea, and vomiting caused by cancer and its treatment. Aromatherapy may be used with other complementary treatments like massage therapy and acupuncture, as well as with standard medical treatments, for symptom management.

Essential oils are the fragrant (aromatic) part found in many plants, often under the surface of leaves, bark, or peel. The fragrance is released if the plant is crushed or a special steam process is used.

There are many essential oils used in aromatherapy, including those from Roman chamomile, geranium, lavender, tea tree, lemon, ginger, cedarwood, and bergamot. Each plant's essential oil has a different chemical make-up that affects how it smells, how it is absorbed, and how it affects the body.

Essential oils are very concentrated. For example, it takes about 220 pounds of lavender flowers to make about 1 pound of essential oil. The aroma of essential oils fades away quickly when left open to air.

#### 2. How is aromatherapy given or taken?

Aromatherapy is used in several ways.

- **Indirect inhalation:** The patient breathes in an essential oil by using a room diffuser, which spreads the essential oil through the air, or by placing drops on a tissue or piece of cotton nearby.

- **Direct inhalation:** The patient breathes in an essential oil by using an individual inhaler made by floating essential oil drops on top of hot water.

- **Massage:** In aromatherapy massage, one or more essential oils is diluted into a carrier oil and massaged into the skin.

Essential oils may also be mixed with bath salts and lotions or applied to bandages.

There are some essential oils used to treat specific conditions. However, the types of essential oils used and the ways they are combined vary, depending on the experience and training of the aromatherapist.

#### 3. Have any preclinical (laboratory or animal) studies been done using aromatherapy?

In laboratory studies, tumor cells are used to test a substance to find out if it is likely to have any anticancer effects. In animal studies, tests are done to see if a drug, procedure, or treatment is safe and effective in animals. Laboratory and animal studies are done before a substance is tested in people.

Laboratory and animal studies have tested the effects of essential oils. See the [Laboratory/Animal/Preclinical Studies](#) section of the health professional version of [Aromatherapy With Essential Oils](#) for information on laboratory and animal studies done using essential oils.

#### 4. Have any clinical trials (research studies with people) of aromatherapy been done?

Clinical trials of aromatherapy have

studied its use in the treatment of anxiety, nausea, vomiting, and other health-related conditions in cancer patients. No studies of aromatherapy used to treat cancer have been published in a peer-reviewed scientific journal.

Studies of aromatherapy have shown mixed results. There have been some reports of improved mood, anxiety, sleep, nausea, and pain. Other studies reported that aromatherapy showed no change in symptoms.

#### Studies on anxiety and depression

- A trial of 103 cancer patients studied the effects of massage compared to massage with Roman chamomile essential oil. Two weeks later, a decrease in anxiety and improved symptoms were noted in the group that had massage with essential oil. The group that had massage only did not have the same benefit.
- Another study of 58 patients with various cancers who completed six aromatherapy sessions showed a decrease in anxiety and depression compared with before the sessions began.
- A randomized controlled trial studied the effects of inhalation aromatherapy on anxiety during radiation therapy. There were 313 patients randomly assigned to either lavender, bergamot, or cedarwood essential oils. There were no differences reported in depression or anxiety between the groups.

#### Study on sleep

- Newly diagnosed patients with acute myeloid leukemia who were hospitalized to receive intensive chemotherapy inhaled



an essential oil through a diffuser overnight for 3 weeks. Patients were given the choice of lavender, peppermint, or chamomile. Improvement was reported in sleep, tiredness, drowsiness, lack of appetite, depression, anxiety, and well-being.

#### Study on dry mouth

- Radioactive iodine may cause damage to salivary glands. Increased saliva production during treatment may decrease damage to salivary glands. In a randomized controlled trial, patients who inhaled a mixture of lemon and ginger essential oils had increased saliva production compared with the placebo group.

#### Studies on nausea and vomiting

- A study of inhaled ginger essential oil in women receiving chemotherapy for breast cancer somewhat decreased acute nausea, but did not lessen vomiting or chronic nausea.
- A study of inhaled bergamot essential oil in children and adolescents at the time of stem cell infusion reported an increase in anxiety and nausea and no effect on pain. In a study of adult patients at the time of stem cell infusion, tasting or sniffing sliced oranges was more effective at reducing nausea, retching, and coughing than inhaling an orange essential oil.

#### Studies on procedure-related symptoms

- Women having breast biopsies were randomly assigned to receive lavender-sandalwood or orange-peppermint essential oil drops placed on a felt tab and attached to their hospital gown or to no scent on the

felt tab. Women who received the lavender-sandalwood aromatherapy tab had less anxiety than women who received the orange-peppermint aromatherapy tab or no scent tab.

- In a study of inhaled lavender essential oil, eucalyptus essential oil, or no essential oil in cancer patients having needles inserted into a central venous port catheter, patients who inhaled lavender essential oil reported less pain.

#### 5. Have any side effects or risks been reported from aromatherapy?

Safety testing on essential oils shows very few side effects or risks when they are used as directed. Most essential oils have been approved as ingredients in food and fragrances and are labeled as GRAS (generally recognized as safe) by the U.S. Food and Drug Administration (FDA). Swallowing large amounts of essential oils is not recommended.

Allergic reactions and skin irritation may occur when essential oils are in contact with the skin for long periods of time. Sun sensitivity may occur when citrus or other essential oils are applied to the skin before going out in the sun.

Lavender and tea tree essential oils have been found to have effects similar to estrogen (female sex hormone) and also block or decrease the effect of androgens (male sex hormones). Applying lavender and tea tree essential oils to the skin over a long period of time was linked in one study to breast growth in boys who had not yet reached puberty.

#### 6. Is aromatherapy approved by the FDA for use as a cancer treatment in the United States?

Aromatherapy products do not need FDA approval.

Aromatherapy is not regulated by state law, and there is no licensing required to practice aromatherapy in the United States. Practitioners often combine aromatherapy training with another field in which they are licensed, for example, massage therapy, nursing, acupuncture, or naturopathy.

The National Association for Holistic Aromatherapy ([www.naha.org](http://www.naha.org)) and the Alliance of International Aromatherapists ([www.alliance-aromatherapists.org](http://www.alliance-aromatherapists.org)) are two organizations that have national educational standards for aromatherapists. A list of schools that offer certificate programs approved by NAHA can be found at <https://naha.org/index.php/education/approved-schools/>.

The Canadian Federation of Aromatherapists ([www.cfacanada.com](http://www.cfacanada.com)) certifies aromatherapists in Canada. See the International Federation of Aromatherapists website ([www.ifaroma.org](http://www.ifaroma.org)) for a list of international aromatherapy programs.

Personal stories

# Dealing with pain from spinal metastases

**Shanty Gultom**, *Volunteer Companion for Breast Cancer Patients Indonesian Breast Cancer Foundation (YKPI)*

I am a Volunteer Companion for Breast Cancer Patients. This is a story about my friend, Yanti, who is 59 years old. She is not married.

In July 2018, Yanti felt a lump in her right breast. It was not big -- about the size of a marble -- and felt hard but didn't hurt. She tried to stay calm. She waited 3 months and the lump continued to get bigger. She then started to worry and told me about it. I was surprised when I felt the lump and advised her to go to a surgeon immediately. Since she did not yet have the National Health Insurance, she delayed.

In November 2018, Yanti's National Health Insurance was approved and she was able to consult with a surgeon. Ultrasound results showed a malignancy, so she was referred to an oncology surgeon. The oncology surgeon had her undergo a mammogram which detected a malignant tumor that measured 8 cm in diameter. He estimated that Shanti had stage 3 breast cancer. She was shocked and very sad.

The oncology surgeon ordered 6 rounds of chemotherapy followed by a mastectomy then 25 rounds of radiation. The pathology report showed Yanti had ER-positive breast cancer, which was HER2- and grade 2. Three out of ten lymph nodes that were removed contained cancer cells. Yanti was also prescribed hormonal therapy.

In March 2020, Yanti noticed that every time she woke up from a sleeping position she felt pain in her waist. The pain intensified every day and did not go away when she took Panadol, an analgesic drug. She wanted to consult a doctor but, due to the pandemic condition, she did not know what to do. She contacted me and told me she was tormented by the unbearable pain. She wondered what was happening to her. I told her there was no need to worry about the pandemic as long as she adhered to strict health protocols. It was more important that she knew her personal health status than to stay at home to avoid the pandemic, which might allow her condition to spiral out of control.

Finally, at the end of May 2020, Yanti

consulted an oncology surgeon who advised her to undergo a bone scan. The scan showed there were metastases from the Thoracal spine 12 to Lumbar 4. The doctor said that her status was a palliative patient. She cried sadly to me over the phone. I encouraged her to try to remain calm. Yanti was next referred for spinal radiation and started receiving Zometa injections once a month. An orthopedic doctor instructed her to wear a spinal corset always. Yanti was shocked by her health condition. I encouraged her to see that her life is still going on, and that things can be done to improve her condition. I was glad to see that, ultimately, she chose to smile and maintain a positive and hopeful attitude.

After all the prescribed medical therapy procedures had been carried out, the pain in Yanti's waist persisted and made her feel helpless. I advised her to ask her medical oncologist to refer her to physiotherapy. Now, she goes to the hospital twice a week to perform a series of exercises to strengthen her pelvis and legs. She also does exercises prescribed by her physiotherapist at home in a chair every day. Every morning she walks around in the garden behind her house while basking in the sun for half an hour. She abstains from behaviors like bending forward to pick things up and standing or sitting for too long. When sitting, she uses a soft chair with a backrest. She has learned the best way to rise up from a sleeping position, and she works on her balance so she does not fall. When she

leaves her house, she always carries a stick to keep her body balanced, and she carries a soft cushion with her in case she needs to sit.

Since October, she has used a neck brace. All of these steps have made her more comfortable. She no longer feels any prolonged pain and no longer needs painkillers. I see no more worry on her face. She is very excited about her life. Good job, dear!



Shanty Gultom

“

I WAS GLAD TO SEE THAT, ULTIMATELY, SHE CHOSE TO SMILE AND MAINTAIN A POSITIVE AND HOPEFUL ATTITUDE.

”

From *Cancer Health* Fall 2020. Reprinted with permission. Copyright 2020 CDM Publishing, LLC. <https://www.cancerhealth.com/article/covid19-changing-face-cancer-care>  
All rights reserved.



## COVID-19: Changing the Face of Cancer Care

The pandemic raises new concerns, but it may also lead to long-lasting improvements.

**Liz Highleyman**  
*Cancer Health*

The COVID-19 pandemic presents new challenges for people living with cancer. Many are worried about whether they are at greater risk of getting the new coronavirus, developing severe COVID-19 or dying from it.

Efforts to protect patients and the diversion of medical staff and resources have resulted in the deferral of cancer care. Many healthy individuals have skipped recommended screenings, people with newly diagnosed cancer have postponed lifesaving treatment and those already undergoing treatment have delayed their scans and blood tests. The pandemic has also led to a slowdown in clinical trials of new therapies.

“Patients undergoing cancer treatment have had to make difficult choices to interrupt or modify their cancer treatment to decrease their risk of COVID-19 but thereby increase their risk of cancer progression or to continue their cancer treatment, risking a greater likelihood of COVID-19 disease or complications,” says Richard Schilsky, MD, executive vice president and chief medical officer of the American Society of Clinical Oncology (ASCO).

But at the same time, the pandemic has brought about greater flexibility and innovations in care and research that could offer long-lasting benefits for cancer patients and survivors.

### Cancer and COVID-19 Outcomes

Early in the pandemic, things seemed simple. Reports from China, where the new disease emerged in late 2019, showed that people with immune suppression had higher rates of COVID-19 and worse outcomes, and this included people with cancer. What’s more, many people with cancer are older and have coexisting health conditions, both of which increase vulnerability to severe COVID-19.

The picture became less clear as researchers worldwide reported widely varying rates of complications and death among cancer patients with COVID-19. But now, efforts to pool data are providing more clarity.

These include the COVID-19 and Cancer Consortium (CCC19), the TERA-VOLT registry of people with lung cancer and the ASCO Survey on COVID-19 in Oncology Registry. The National Cancer Institute (NCI) recently started the NCI COVID-19 in Cancer Patients Study, or NCCAPS, which aims to collect medical information from 2,000 people with cancer and COVID-19 who will be followed for up to two years.

Some studies have shown that people with cancer are more likely to contract the coronavirus. Such research is complicated by the fact that cancer patients spend more time in medical settings where they could be exposed to the new virus, although they are also more likely to take precautions in their daily lives.

The impact of cancer on COVID-19 outcomes is more definitive. Studies throughout the world have found that people living with cancer are at greater risk for severe COVID-19 and death. Still, the effect of cancer “pales in comparison” with the added risk associated with other conditions such as cardiovascular disease or diabetes, according to Leora Horwitz, MD, of New York University Langone Health. But risk factors add up: People with cancer who are older, are Black or Latino or have other health conditions are likely to fare worse.

Reports from some early COVID-19 epicenters, where medical capacity was stretched to the breaking point, showed that people with cancer had very high mortality rates. For example, at Montefiore Health System in the Bronx, 28% of COVID-19 patients with cancer died—two to three times the rate of people without cancer.

More recent multicenter studies, however, have seen lower rates of COVID-19 complications and deaths as clinicians have gained a better understanding of the new disease and how to treat it.

A CCC19 analysis of more than 2,700 cancer patients with COVID-19, presented at the American Association for Cancer Research COVID-19 and Cancer Virtual Meeting in July, showed that 60% were hospitalized, 16%

were admitted to an intensive care unit, 45% needed oxygen, 12% were put on ventilators and 16% died.

But people with cancer are not all alike. Studies have consistently shown that people with lung cancer or blood cancers, such as leukemia or lymphoma, have worse outcomes. While the overall mortality rate for people with cancer in the CCC19 analysis was 16%, this rose to 19% for those with colorectal cancer, 22% for those with lymphoma and 26% for those with lung cancer. On the other hand, people with breast cancer, gynecological cancers or prostate cancer do not appear to be at greater risk.

People with active cancer, especially those with metastatic disease, are more prone to severe COVID-19 and death. An earlier CCC19 analysis found that mortality rates were 25% for people with progressive disease, 14% for those whose cancer was stable or responding to treatment and 9% for those who were in remission or had no remaining evidence of disease. But to date, there has been little research on coronavirus outcomes among survivors with a past history of cancer, people who have finished treatment and those who are in remission.

The type of cancer treatment also plays a role. Many chemotherapy drugs kill immune system white blood cells, leaving people less able to fight off infections. While several studies have shown that people currently undergoing chemo are at greater risk for COVID-19 complications, others haven’t seen such a link.

The impact of immunotherapy is less clear. Part of the damage to the lungs and other organs in people with advanced COVID-19 is caused by the coronavirus itself, but some severe complications are due to an overactive immune response known as a cytokine storm. Immune checkpoint inhibitors that boost T-cell activity could potentially help the body fight the coronavirus—or they could make matters worse. Studies to date have yielded conflicting results.

As research continues to sort things out, experts say concerns about COVID-19 should not be a



reason to stop cancer treatment, as the risk of disease progression is likely a bigger threat.

The latest CCC19 analysis—the largest to date—found that cancer treatment, including cytotoxic chemotherapy, targeted therapy, immunotherapy, hormone therapy, radiation and surgery, did not significantly increase the risk of death for cancer patients with the coronavirus.

“This indicates that cancer care can continue for these patients,” says Brian Rini, MD, of Vanderbilt-Ingram Cancer Center in Nashville.

### Impact on Cancer Care

The COVID-19 crisis has affected all areas of cancer care, including screening, diagnosis, treatment, follow-up monitoring and clinical trials. While preventive screenings, nonurgent surgery, certain types of medication and routine checkups can often be safely modified or delayed, they can't be put off forever.

“A screening delay of three months is not likely to affect overall mortality,” says Otis Brawley, MD, of Johns Hopkins University in Baltimore. “Failure to receive treatment is going to account for far more deaths—and this could have an impact in three months.”

During the worst outbreaks of COVID-19—as occurred in the Northeast in the spring and are still cropping up across the country—personal protective equipment and other resources are in short supply, and doctors and nurses are diverted from their regular work to focus on patients with COVID-19. Experts have advised people in hard-hit areas to stay home and in particular to steer clear of health care facilities to avoid exposure to the coronavirus.

This has had a dramatic impact on cancer care. During the spring, the number of people getting screening tests such as mammograms declined by around 90%. An analysis by the national laboratory testing company Quest Diagnostics saw a steep 46% drop in the diagnosis of six common cancer types during March and April.

A survey by the American Cancer Society in May found that 62% of respondents said COVID-19 had affected their cancer care in some way, 37% reported delays and nearly a quarter feared losing their health insurance due to the economic fallout of the pandemic. For patients who do receive care at a hospital or infusion center, restrictions on visitors can mean facing the ordeal alone.

In a recent editorial in *Science* magazine, NCI director Norman Sharpless, MD, estimated that reduced screening due to COVID-19 and the resulting delays in diagnosis and treatment could lead to nearly 10,000 additional deaths from breast cancer and colorectal cancer over the next decade.

“Cancers being missed now will still come to light eventually but at a later stage...and with worse prognoses,” he wrote. “Ignoring life-threatening non-COVID-19 conditions such as cancer for too long may turn one public

health crisis into many others.”

### Innovations in Care

Clinicians and patients are finding new and more flexible ways to deliver cancer care in the wake of the pandemic.

Sometimes treatments can be administered in a different order or on a modified schedule, such as starting medications while awaiting delayed surgery or receiving radiation or infusions less often. Oral medications can sometimes be substituted for IV chemotherapy. Some doctors advise using therapies that cause less immune suppression or are less likely to lead to side effects that could require hospitalization. People with low-risk cancer may opt for active surveillance rather than immediate treatment. And monitoring scans may be done less frequently.

Most cancer centers have shifted some of their on-site care to telemedicine and home care. Consultations about a diagnosis or side effects, for example, may be done via video chat; this can enable loved ones and caregivers to participate. Virtual meetings can also be a good option for support groups and mental health counseling. Some providers have given patients devices to monitor their vital signs and conduct other tests at home. In certain cases, IV chemotherapy may be administered by a nurse at home, but ASCO cautions that home infusions generally are not a safe alternative to outpatient treatment.

Recognizing its importance during the crisis, Medicare has expanded its coverage of telehealth and is considering making the change permanent. But the digital divide in familiarity with and access to technology could limit some people's ability to benefit from these innovations, including older people and those with lower incomes.

Finding ways to continue clinical trials is another urgent priority. “Trial interruptions are devastating news for thousands of patients,” says ASCO president Howard Burris, MD, of Sarah Cannon Cancer Center in Nashville. “In many cases, clinical trials are the best, or the only, appropriate option for care.”

To this end, the Food and Drug Administration, the NCI, ASCO and others are working with trial investigators and drug company sponsors to increase flexibility in how studies are designed and carried out.

For example, informed consent may now be provided remotely rather than in person. Participants are being asked to make fewer study visits, and scans and blood work can be done closer to home. “[Patients] don't have to drive an hour for a CAT scan when there's a machine 10 minutes away,” says Patricia LoRusso, DO, of Yale University School of Medicine.

Carrying these changes forward after the crisis could enable more people—including those in minority and underserved populations—to participate in lifesaving

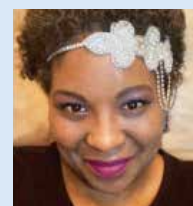
studies. “Democratization of clinical trials will allow all people to have access to novel treatment for their disease,” LoRusso says.

Communication is key to helping people balance concerns about COVID-19 and cancer progression, taking into account their risk factors, type of cancer and its stage.

“The best course of action requires a detailed discussion between each patient and their oncologist,” Schilsky says.

Medical facilities in some areas are starting to bring patients back for screenings and treatment that can no longer be safely postponed—often with new precautions in place—even as others face further shutdowns. This may not be easy: A survey of more than 500 participants conducted by the Kidney Cancer Research Alliance found that they were equally worried about COVID-19 and cancer progression.

But experts offer reassurance: “It's safer to come to the hospital than it is to go to the grocery store, and that's true because we continue to have a high concern for caution and safety,” says Lawrence Shulman, MD, of the University of Pennsylvania Abramson Cancer Center. “We haven't let down our guard at all.”



“My anxiety has gone sky-high during COVID-19, but it's OK to not be OK. The shutdown means a loss of time, and we're never going to get it back. As cancer patients, we've already lost so much time.”

—Megan-Claire Chase (Warrior Megsie), young adult breast cancer survivor



“Part of the grief of COVID-19 for people with cancer is that we can't do the things on our bucket list. We worry we won't be able to see our loved ones, maybe for the last time. The pleasures we use to cope are no longer available.”

—Robin McGee, patient advocate and clinical psychologist living with colorectal cancer



“I have mixed feelings about telehealth. In some ways, it's much easier and there's a sense of security at home, but there's an element of distance when we aren't together in the same room.\*

—Jeff Neuman, *Guys With Cancer* podcast cohost living with leukemia

\*Excerpts from *Cancer Health at Home: Coping With COVID-19*, July 23, 2020. To watch the video, go to [cancerhealth.com/athome](https://cancerhealth.com/athome).

# A paradigm in molecular studies in India – the city of Pune’s first biobank for breast cancer tissues

Laleh Busheri, *Pune, India*

Breast cancer is one of the leading causes of death in women worldwide. The death rate in low-income, developing countries is higher than in developed countries. There is a significant difference in the breast cancer survival rate worldwide. The 5-year survival rate in developed countries is about 80%, whereas it is only about 40% in low-income countries.

Global data indicates that the incidence of breast cancer in South Central Asia is among the lowest in the world, yet the incidence to mortality rate there is among the highest. The incidence of breast cancer in the Indian population alone is projected to grow to 1.7 million by 2035, when the expected overall population of the country will be 1.25 billion. India is facing this challenging situation due to inadequate breast cancer screening and diagnoses, resulting in late or advanced-stage presentation of the disease. Moreover, on average Indian women are diagnosed with breast cancer a decade younger than western women, suggesting that the incidence of breast cancer is common at a younger, pre-menopausal age in India. This unique profile of breast cancer patients in India compared to western patients calls for investigation to understand the disease etiology there with adequate information about disease progression data. Collecting clinical data along with tumor tissue at incidence in order to explore genetic and molecular profiles of Indian breast cancer patients is essential to understand the unique profiles of the disease in our cohort.

Prashanti Cancer Care Mission (PCCM) has initiated the essential activity needed at this time. The center has established a breast biobank – the first of its kind in Pune -- with thorough ethical approvals to collect clinical information of breast cancer patients along with tumor tissue to aid in the understanding of the disease in the context of India. As a comprehensive cancer center providing

affordable breast cancer treatment and care, PCCM is well-suited for this purpose. It adopts a holistic approach to guide patients through diagnosis, treatment, and follow-up, all under one roof. This helps patients develop a close and a friendly association with their oncologist and the team; hence, they are willing to give their consent to share clinical data and family history.

The number of patients visiting PCCM has been rising since its inception in 2010 due to its excellent track record and its efforts to increase awareness. The tissue and data biobank was established in 2018 to build a retrospective cohort of breast cancer patients that have been diagnosed and treated at PCCM. The biobank holds clinical history, diagnostic images, treatment and follow-up information, along with tissue specimens from tumours, adjacent normal tissues, and, in few cases, contralateral normal breast tissue. Detailed family histories and germline mutational (genetic) profiles of eligible and consenting patients and their relatives are deposited in the biobank. The clinical data and tissue sample collection is done with appropriate patient consent following ethical guidelines and approval.

The trained staff has meticulously worked with the patients through their yearly follow-ups and direct contact to emphasise the value of their contribution to the biobank. They have obtained informed and willing consent from over 1,000 patients. In addition, germline mutation profiles of 175 patients and their family members are available. A majority of the records (80%) are of patients with infiltrating ductal carcinoma (IDC), a common and deleterious form of breast cancer. The most critical aspect of any cancer patient biobank is the follow-up clinical information of the patients, which provides valuable information on disease progression and recurrence as well as the effectiveness of the treatment on



Spotlight on:  
India!

relapse and survival rate. PCCM's biobank has such follow-up information available for 82% of the IDC patients with average follow-up of 3 years.

The biobank has aided initiation of the Centre for Translational Research (CTCR); a joint initiative of PCCM with the Indian Institute of Science, Education, and Research, Pune, one of the eminent academic institutions in the country. The biobank will prove a valuable resource to evaluate and understand breast cancer aetiology in an Indian cohort and will aid the breast cancer research community at large.



Laleh Busheri

“INDIA IS FACING THIS CHALLENGING SITUATION DUE TO INADEQUATE BREAST CANCER SCREENING AND DIAGNOSES, RESULTING IN LATE OR ADVANCED-STAGE PRESENTATION OF THE DISEASE.”

This edition of Bloom features popular holiday recipes from Kenya and Portugal, representing both the southern and northern hemispheres.

# Mukimo

## (Maize, Beans, Potatoes & Pumpkin Leaves)

This recipe is a family dish common among the Kikuyu, Meru and Embu communities. It is served mainly for lunch or dinner.

Global  
Kitchen

KENYA



**PREP TIME: 15 MIN.**  
**COOKING TIME: 1 HOUR**  
**SERVINGS: 4**

### Ingredients:

10 potatoes (1386 g), unpeeled, Irish, white  
9 stalks (81 g) pumpkin leaves, raw  
7 ½ cups combined white maize and kidney beans (1182 g), boiled (ration of maize to beans is 1:2)  
4 ⅔ cups water (999 g)  
2 ½ tsp. salt (13 g), iodized

### Directions:

1. Peel, wash and cut the potatoes into cubes
  2. Cut the pumpkin leaves
  3. Pour the 4 ⅔ cups water into the empty cooking vessel. Add potatoes and salt
  4. Boil the potatoes for 20 minutes then add the cut pumpkin leaves. Cover the pot and cook for 2 minutes more
  5. Add the boiled 7 ½ cup mixture of maize and beans and cover; cook for 20 minutes more
  6. Remove from heat and mash the mixture
- Serve while hot



# Ingokho

## (Stewed Chicken)

Stewed chicken is common among many communities in Kenya. It has different names but ingokho stands out due to the way this dish is special to the Luhya community. It is eaten as a protein to a main meal and served with Ugali (maize-flower porridge) or any other starch. It is savoured by the entire family.

Global  
Kitchen

KENYA

PREP TIME: 15 MIN.

COOKING TIME: 1 HOUR & 15 MIN.

SERVINGS: 4

### Ingredients:

- 1.4 kg chicken (3 lb), whole
- 2 red skinned onions (219g), raw, unpeeled
- ½ green capsicum (187 g)
- 2 tsp. salt (11 g), iodized
- 4 tomatoes (504 g) red, ripe

### Directions:

1. Light a charcoal stove. Put a mesh over the fire to singe any thin feathers and lightly brown the skin of the chicken
2. After 12 minutes, cut the chicken into large chunks and continue roasting for another 5 minutes or so. Remove from the fire
3. Cut the chicken into smaller portions and return the pieces to the fire for another 11 min.
4. Put the chicken onto a heated pan. Cook the chicken without added oil/ fat to brown further. Keep turning for the chicken to cook evenly
5. Add salt to the chicken and keep turning.
6. Add the whole green capsicum into the pan with chicken. Turn the stove to low heat and let it simmer for 9 minutes
7. Prepare the onions and tomatoes by chopping into small pieces and placing in separate bowls
8. Add the onions, cover and continue cooking for another 25 minutes
9. Remove the whole green capsicum from the pot and immediately add tomatoes
10. Continue cooking for another 13 minutes
11. Remove from the fire

Serve while hot



# Sukuma Wiki

## (Stir-fried Kale)

Global  
Kitchen

KENYA

Sukuma wiki is the most commonly used green vegetable in Kenya. It is commonly served with Ugali or any other food as a side dish.



PREP TIME: 15 MIN.  
COOKING TIME: 20 MIN.  
SERVINGS: 4

### Ingredients:

Sukuma wiki leaves (2667 g/6 lbs), raw  
2 tomatoes (345 g), red, ripe  
1 onion (184 g), red skinned, raw, unpeeled  
¼ cup cooking oil (45 g)  
½ tsp. iodized salt (3 g)

### Directions:

1. Wash the sukuma wiki and then remove the stalks
2. Roll a handful of sukuma wiki leaves into a bunch and chop finely
3. Wash, prepare and cut the onion and tomatoes separately
4. Place a cooking pot on the fire and add cooking oil
5. Cook the onion until golden brown
6. Add tomatoes into the pot
7. Cook tomatoes until ready
8. Add the chopped sukuma wiki and salt
9. Stir until evenly mixed
10. Simmer over low heat for 5 minutes.  
Serve while hot. Enjoy!



# Pork Loin with Chestnuts

Global  
Kitchen

PORTUGAL

## Ingredients:

Pork loin (1 kg/2 ¼ lbs)  
chestnuts (1.2 kg/2½ lbs)  
1 large onion, cut into round slices  
4 – 6 potatoes, cubed  
2 tsp olive oil  
2 bay leaves  
3 unpeeled crushed garlic cloves  
white wine (100 ml/½ cup)  
2 tsp honey

**PREP TIME: ½ HOUR**

**COOKING TIME: 1 HR 10 MIN.**

**SERVINGS: 4**

## Directions:

1. Season the pork loin to taste with salt, pepper, bay leaf, unpeeled crushed garlic and white wine. Marinate for approximately two hours
2. Cook the chestnuts in a saucepan with water seasoned with some salt. When they are cooked, let cool and remove the peel
3. Heat over to 180°C (350°F). At the bottom of a rectangular baking dish, place the sliced onions, followed by the cubed potatoes seasoned with a little salt, then the pork loin with the marinade. Drizzle everything with olive oil and bake for about one hour, marinating occasionally
4. When the potatoes and the meat start to turn slightly golden, remove the baking dish from oven briefly. Add the chestnuts, brush the meat with honey and place the baking dish back in the oven for 10 more minutes. Remove from oven and serve.



# Traditional Cod

Global  
Kitchen

PORTUGAL



**PREP TIME:** ½ HOUR  
**COOKING TIME:** ABOUT 30 MIN.

**SERVINGS:** 2

## Ingredients:

Cod steaks, (1.2 kg/2½ lbs ) cut into pieces  
3 – 4 tsp olive oil  
1 medium onion, cut into round slices  
Small potatoes (600g/1 ½ lbs)  
1 red pepper, cut into strips  
Black pepper, ground, to taste  
Pinch of Paprika  
1 bunch chopped coriander  
Olives to taste

## Directions:

1. Cook the potatoes with the peel in a saucepan with water seasoned with salt. Turn off the heat and drain the potatoes with a skimmer. With a knife, give a small cut on each potato and set aside.
2. Put olive oil, onion slices, cut into round slices, red pepper strips, and the unpeeled crushed garlic into a frying pan and sauté over low heat until the onion starts to turn slightly golden. Add the cod, season to taste with pepper and paprika, and cook the cod on both sides about 10 minutes. Add the potatoes, shake the frying pan and cook for more 3 to 4 more minutes. Turn off the heat and sprinkle with chopped coriander. Garnish with olives and serve.



# Baked Turkey Leg

Global  
Kitchen

PORTUGAL

**PREP TIME: 1 HOUR 20 MIN.**  
**COOKING TIME: 1 HOUR 30 MIN.**

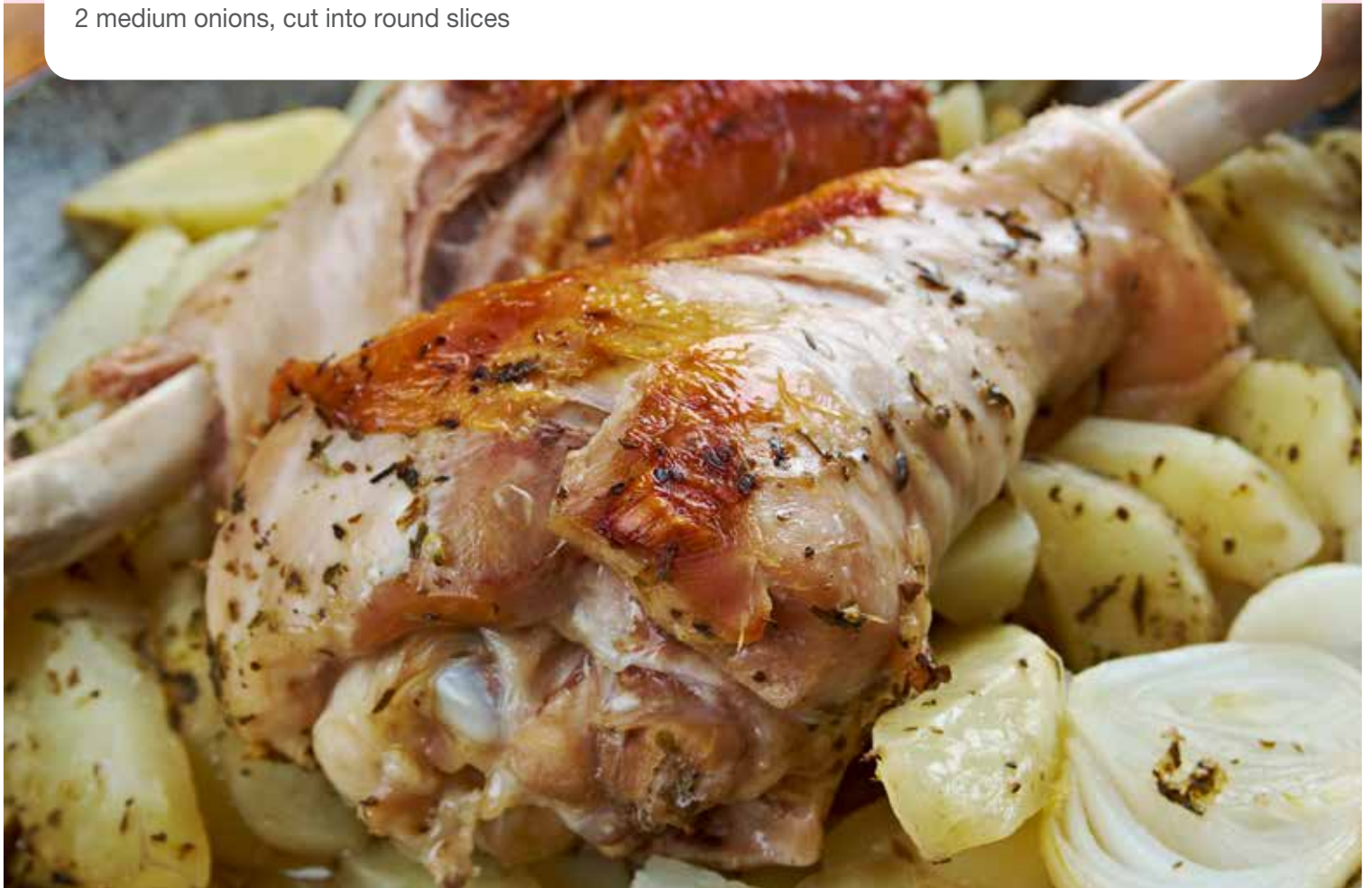
**SERVINGS: 2**

## Ingredients:

Turkey leg (1 kg/2 ¼ lbs)  
White wine (100 ml/ ½ cup)  
Juice of one lemon  
Small potatoes (1.2 kg/¾ lbs), unpeeled  
Black pepper, to taste  
Nutmeg, to taste  
5 bay leaves  
6 cloves garlic, whole peeled  
2 medium onions, cut into round slices

## Directions:

1. Place the onion slices in the bottom of a baking pan. Place turkey leg and unpeeled potatoes on top.
2. Season with salt, pepper, parika, nutmeg, the peeled garlic, lemon juice, and bay leaves. Drizzle with olive oil and white wine. Marinate for about 1 hour.
3. Preheat oven to 180 C (350 F)
4. When marinating is complete, place baking dish in oven and bake until golden brown, about 1 hour and 30 minutes. Drizzle turkey leg and potatoes occasionally with sauce in pan. Remove from oven and serve.



# Baked Apples

Global  
Kitchen

PORTUGAL

## Ingredients:

Apples  
1 tsp yellow sugar per apple  
Orange juice  
1 tsp Port wine per apple  
Cinnamon powder

## Directions:

1. Preheat oven to 180 C (350 F)
2. Wash the apples and remove the core with an apple corer.
3. Put the apples in a baking dish and season with cinnamon powder, Port wine and yellow sugar.
4. Bake in the oven 180°C (350°F) about 50 minutes to 1 hour. Occasionally, drizzle the apples with the sauce in baking dish. Turn off the oven, let cool slightly and serve.

PREP TIME: 15 MIN.  
COOKING TIME: 50 MIN. TO 1 HOUR  
SERVINGS: 1 APPLE

